

Listing of claims

This listing of claims replaces all prior versions and listings of claims in this application:

Claims 1-4 (canceled)

5. (currently amended) A hybridization apparatus of the type providing a chamber for containing a hybridization liquid over a hybridization material immobilized on a substrate comprising:

- a substrate comprising a substantially flat top surface adapted to support an immobilized hybridizable material;

- a cover slip comprising

- a thickness of at least 0.85 mm,

- a substantially flat bottom surface,

- two substantially parallel, opposed longitudinal edges bounding the bottom surface, and

- a pair of noncontiguous spacer segments attached to the bottom surface of the cover slip, each spacer segment extending substantially contiguously with a full length of a different one of the opposed longitudinal edges and forming a hybridization chamber between the spacer segments, the bottom surface of the cover slip and the top surface of the substrate, the hybridization chamber comprising a substantially constant distance between the bottom surface of the cover slip and the top surface of the substrate, the hybridization chamber extending substantially to opposite ends of the cover slip and comprising an area between the spacer segments of at least 500 square mm, and the hybridization chamber adapted to contain the hybridization material when the cover slip is placed on the substrate with the spacer segments sandwiched therebetween, the cover slip thickness being sufficient to provide a cover slip beam stiffness that prevents adhesion forces from substantially changing ~~[[a]]~~ the substantially constant distance between the

bottom surface of the cover slip and the top surface of the substrate, the adhesion forces being created by the introduction of hybridization liquid into the hybridization chamber.

Claims 6-43 (canceled)

44. (previously presented) A hybridization apparatus as in claim 5 wherein the cover slip comprises a thickness greater than 1 mm and less than or equal to 2.0 mm.

45. (previously presented) A hybridization apparatus as in claim 5 wherein the cover slip has a flatness of about ± 0.005 mm.

46. (previously presented) A hybridization apparatus as in claim 5 wherein each spacer segment is a thin bar having a width of about 75 μ m.

47. (previously presented) A hybridization apparatus as in claim 5 wherein the spacer segments are printed on the bottom surface of the cover slip.

48. (previously presented) A hybridization apparatus as in claim 5 wherein the hybridizable material is arranged in a microarray.

49. (previously presented) A hybridization apparatus as in claim 5 wherein the hybridizable material comprises a nucleic acid.

50. (previously presented) A hybridization apparatus as in claim 5 wherein the hybridizable material comprises a protein.

51. (previously presented) A hybridization apparatus as in claim 5 wherein the hybridization liquid facilitates hybridization reactions between complementary nucleic acids.

52. (previously presented) A hybridization apparatus as in claim 5 wherein the hybridization liquid facilitates hybridization reactions between an antibody and antigen.

53. (previously presented) A hybridization apparatus as in claim 5 wherein the substrate and the cover slip are flat, rectangular glass members.

54. (previously presented) A hybridization apparatus as in claim 5 wherein the thickness of the spacer segments is substantially constant.

55. (previously presented) A hybridization apparatus as in claim 5 further comprising additional spacer segments along the periphery of the bottom surface of the cover slip.

56. (previously presented) A hybridization apparatus as in claim 5 further comprising additional spacer segments on the bottom surface of the cover slip and located between said longitudinal spacer segments.

57. (previously presented) A hybridization apparatus as recited in claim 5 wherein at least two channels are formed between the recited spacer segments for the introduction of hybridization fluid into the hybridization chamber and the venting thereof.